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Awake!

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FEATURE ARTICLES

3 VALUES TO LIVE BY: An article that will help you to take a fresh look at your own values, to deepen appreciation for ones that are often neglected.

5 OUR SON HELPED CORRECT MY VALUES: A mother whose son was born defective tells how their household has benefited from the experience. Their lives are changed as they have learned to cope with the situation.



VALUES To Live By

**What are your values?
Many need to reevaluate**

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WHY THIS MAGAZINE IS PUBLISHED

"Awake!" is for the enlightenment of the entire family. It reports the news, tells about people in many lands, examines religion and science. But it does more. It probes beneath the surface and points to the real meaning behind current events, yet it stays politically neutral and does not exalt one race above another. It also shows how to cope with today's problems. Most importantly, "Awake!" builds confidence in the Creator's promise of a peaceful and secure new order within our generation.

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VALUES To Live By



VALUES relate to needs. Usually we do not value things that do not fill a need. The stronger the need, the higher the value we put on meeting it. Our needs are many and they vary. They are different at different times. They are different for different people. Some needs are inherent. Others are acquired. Some are not essential and may even be detrimental. We are not aware of some of our needs, and others that we know about we fail to value until it is too late. For these reasons people have different sets of values that they live by. Have you thought about yours lately? Do you put higher values on meeting the more important needs?

There are basic needs common to all of us. Air, water, food, warmth, sleep—these are needs that must be satisfied if we are to survive. When their demands become acute, all else must wait until they are met. It is true that man does not live by bread alone, but when he is starving, food has priority. So it is with those other needs relating to survival. But, when they are satisfied, our attention turns to other things.

**What are your values?
Many need to reevaluate**

Man is gregarious, not a solitary creature, as are some animals. He needs the companionship of others. For it to be pleasant, he must feel accepted. He values this so much that he will forgo some of his personal preferences in order to fit in with the group. Even if the association is sometimes abrasive, it is preferred to being alone. So strong is this need that some will set aside their own principles and values to have the feeling of belonging. It is said that what is



honored in a society is what is striven for—a saying based on this need for approval. Many place a higher value on this esteem of others than they do on their own personal integrity. It is this tendency that gives force to the Biblical warning: “Bad associations spoil useful habits.”—1 Cor. 15:33.

Value Your Self-Respect

If we abandon our personal integrity or values in order to be popular, we will suffer for it. We will lose our self-respect, our feeling of personal worth, our love for ourselves. The psychological damage is great and its repercussions are far-reaching. In both the Hebrew and the Greek Scriptures we are told to love others as we love ourselves. This love of self is not the indulgent, selfish, egotistical kind, but it involves having values to live by that enable you to respect yourself. You must love yourself in order to love others. Without this love you will feel insecure and jealous of others and will be tempted to criticize and gossip about them. Finding fault with others makes one feel superior. However, the Bible’s admonition is to do nothing “out of egotism, but with lowliness of mind considering that the others are superior to you,” and to “keep this mental attitude in you that was also in Christ Jesus.” (Phil. 2:3, 5; John 13:5) So do not try to build yourself up by tearing others down. To do this diminishes self-respect and devalues the person.

We should value useful work. Jehovah God, our Creator, is a worker, and we are made in his image and likeness. He takes pleasure in seeing the completion of his works and he pronounces them good. (Gen. 1:10, 12, 18, 21, 25, 31) Man needs to work, to have a sense of accomplishment. Work well done testifies to the worker’s abilities and imparts a feeling of worth to him. Idleness makes us feel useless and of little value, whereas good work gives pur-

pose and meaning to our lives. Many times we hear people say: ‘Life has no meaning. What’s the purpose of it all?’ Such persons are overwhelmed by a sense of futility.

Maybe they work hard and accumulate wealth. This does not satisfy. “A mere lover of silver will not be satisfied with silver, neither any lover of wealth with income. This too is vanity.” (Eccl. 5:10) They base their values on material things, “the desire of the flesh and the desire of the eyes and the showy display of one’s means of life.” (1 John 2:16) Absorbed in the pursuit of material things, they neglect the needs of the spirit. They have only so much time and energy and they invest these in what they value most. Maybe it is wealth or position or prestige. Once they get it, it no longer seems so vital. After all their hard work they end up disillusioned because they lived by the wrong set of values. They lacked awareness of their spiritual needs.

The Greatest of All Values

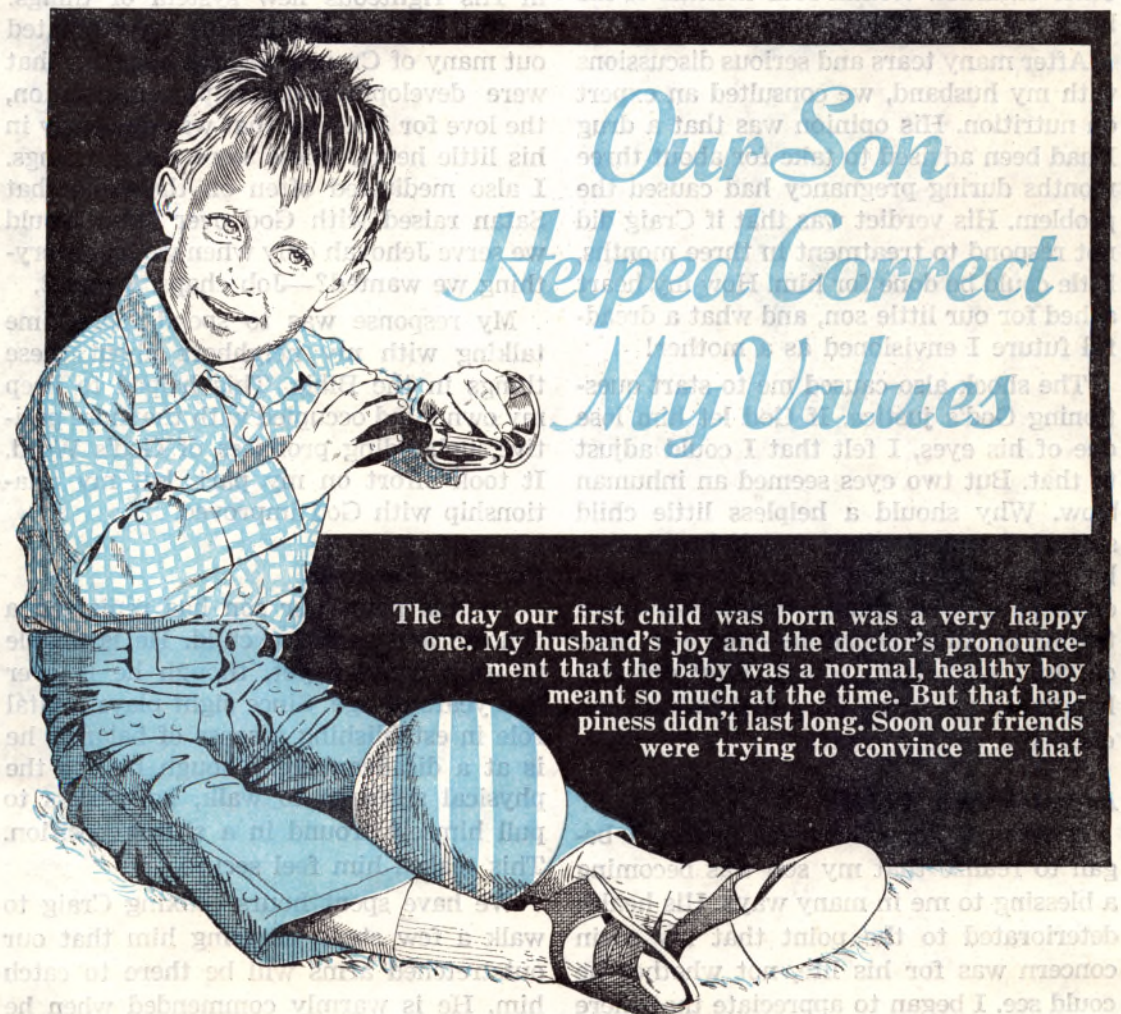
“Happy are those conscious of their spiritual need,” Jesus said. (Matt. 5:3) Many do not become aware of this need until late in life, when energies wane and little time remains. We value the fulfillment of physical and mental and emotional needs during our lifetime, but at the same time we must realize that none of these things will prolong our lives much beyond threescore and ten or fourscore years. They are for short-term survival. Properly valuing our spiritual need can mean survival eternally. Men say, “You can’t take it with you,” meaning material wealth. But there is something of far greater value that you can take with you: a good name with God. Ecclesiastes 7:1 states: “A good reputation is better than expensive perfume; and the day you die is better than the day you are born.”—*Today’s English Version.*

How can this be? How can the day you

die be better than the day you start life? It is true only if on the day of your death you have a good name with God, a name that he will remember at the time of your resurrection. This will mean your coming forth to a life that can be everlasting, if you place the proper value on it. We are prone to take for granted the many blessings we possess—our vision, our hearing, our general health, life itself. Only when these blessings begin to slip away from us do we suddenly realize their value. When

one is dying, others may say, 'Well, he lived a long and good life,' as though that makes dying more acceptable. It doesn't for the one dying. The past doesn't count. It is the present and the future that matter, that become the real need. So the greatest of all values is meeting that need by now making a good name with God.

Are you aware of this? Do you need to reevaluate the values you live by? The following article tells how happy one person was who did this.



Our Son Helped Correct My Values

The day our first child was born was a very happy one. My husband's joy and the doctor's pronouncement that the baby was a normal, healthy boy meant so much at the time. But that happiness didn't last long. Soon our friends were trying to convince me that

Craig was having difficulty with his eye control. After a checkup, a doctor assured us that nothing major was wrong. But one week after the doctor's visit, Craig developed a dense cataract in one eye. Our three-month-old son was half blind!

An eye specialist informed us that unfortunately we had picked the wrong individuals to marry, since our son's defect was hereditary. The thought of a half-blind son was painful enough, let alone being told that I had married the wrong person. Then the following week Craig's other lens was completely closed by another cataract. Within four months of his birth, he was totally blind!

After many tears and serious discussions with my husband, we consulted an expert on nutrition. His opinion was that a drug I had been advised to take for about three months during pregnancy had caused the problem. His verdict was that if Craig did not respond to treatment in three months, little could be done for him. How my heart ached for our little son, and what a dreadful future I envisioned as a mother!

The shock also caused me to start questioning God's justice. If God let him lose one of his eyes, I felt that I could adjust to that. But two eyes seemed an inhuman blow. Why should a helpless little child suffer? I looked after myself healthwise, before and after pregnancy. I knew of other mothers who abused themselves—even trying to cause abortions—and yet their children were born sound. Why did this happen to me when I wanted to love and cherish a child so much?

Learning New Values

It was not long, however, before I began to realize that my son was becoming a blessing to me in many ways. His health deteriorated to the point that my main concern was for his life, not whether he could see. I began to appreciate that there

are other precious gifts, the greatest being life itself. It was so good to have him alive!

My husband would remind me that the imperfection of our bodies, the unforeseen side effects of the drug and the deteriorated conditions under which we live were factors to keep considering. Friends pointed to many examples of other children as badly off and who learned to cope with serious problems.

Also, as the years passed by, my husband and friends constantly reminded me of how God purposes to remove all handicaps for those who will live on this earth in His righteous new system of things. (2 Pet. 3:13; Rev. 21:3, 4) They pointed out many of Craig's positive qualities that were developing—his happy disposition, the love for Jehovah that was obviously in his little heart. These were real blessings. I also meditated often on the issue that Satan raised with God over Job: Would we serve Jehovah only when we had everything we wanted?—Job chaps. 1 and 2.

My response was to spend more time talking with my neighbors about these things in the Bible. This helped to keep my own mind occupied with the more positive, upbuilding promises of God's Word. It took effort on my part, but my relationship with God improved.

Patience Essential

To this point our son has remained a delicate and sensitive child. He is unable to walk unaided yet, though he is over five years of age. Since sight plays a vital role in establishing a sense of balance, he is at a disadvantage. Though he has the physical strength to walk, he prefers to pull himself around in a sitting position. This makes him feel secure.

We have spent hours coaxing Craig to walk a few steps, assuring him that our outstretched arms will be there to catch him. He is warmly commended when he

tries, but he usually reverts to the sitting position and to the use of furniture as an aid to getting about. We cannot chastise him or hurry him; otherwise, he quickly regresses. His slow response has taught us patience.

Another difficult area is speech comprehension. At first Craig appeared particularly bright. He found it easy to repeat words and answers in parrotlike manner. But as time went by we noticed an inability to put together meaningful sentences. The possibility of also having a mentally retarded child next loomed before us.

Correspondence with a government-sponsored school for the blind helped us to understand the situation. A person with sight may think he understands the situation of a blind person by simply closing his eyes. But he still has his past visual memory on which to draw. It is impossible for a person with sight simply to close his eyes and understand what it is like to be blind from birth. From this we realized that there was no lack on Craig's part, but, rather, on ours, in not constantly giving verbal descriptions of things he would normally learn from visual observation.

Sighted children are great imitators. But how can a sightless child imitate picking up a spoon at mealtimes, for example, or closing a door or turning a page in a book? He cannot see the object or the movement. How do you explain what it is like to see a bird flying or a horse galloping?

The issue now became clear. I would have to speak with Craig far more frequently and tell him what I was doing as I moved about the house and worked. Where possible, I allow him to feel the object I am handling, taste or smell it and then feel the movement.

If I am closing a door, I explain what I am doing. Then he is encouraged to feel

the door, listen to the slight sound as it moves through the air and finally the click as it closes. As I repeat the movement, without his feeling the door he is asked to tell me what I am doing. This procedure has to be followed to aid him to comprehend movement in relation to objects and people. As a result, both his comprehension and his speech have greatly improved. Patience and perseverance are bringing us many rewards.

Heightened Sensitivity

Craig's sensitivity has made us conscious of kindness and empathy in training. He is amazingly sensitive to the atmosphere in a home. Even as a baby he could sense whether a family was kind and relaxed or not. If the atmosphere was not peaceful and calm, we could not leave him with the people, even though they were our friends. On the other hand, we have noticed that Craig feels right at home with people who have an air of quiet tranquility. My husband and I have naturally had to be more conscious of our own relationship. Heated words between us unsettle Craig. Conversely, he thrives when we are relaxed and at peace.

Since eyesight relates to our taste buds, Craig has very conservative tastes. At one time he disliked all vegetables. Perseverance and ingenuity have been required to introduce him to new foods.

Smell is another area that is particularly sensitive. Craig has no trouble detecting foods that seem fairly odorless to us. We encourage this sense of smell. One light touch with his fingertips to any food and then to his nose tells him what it is.

Like many sightless children, Craig is also sensitive to music. This medium soothes him when he is tired and edgy. Too much music, however, encourages passivity, much like prolonged television viewing does in the case of sighted children.

Discipline

We do not want a spoiled child, even if he is handicapped. So when Craig cries in a tantrum, we let him know by our tone of voice that we are displeased. Because he cannot see the expressions on our faces, modulation of voice is a must.

In respect to training, up till now a point has been made of only associating with God the things Craig likes. He now likes grapes. So we will say: "Do you know who made the grapes? Jehovah did." This method is used with anything that our son is fond of. If we are with our friends enjoying a barbecue and he is relishing a chop or sausage, we explain who made these good things possible.

Craig sometimes lies on the ground and giggles at the sound of birds, especially our Australian cockatoo or kookaburra. Turkeys capture his attention too. When we notice his enjoyment, we explain that Jehovah made them, and also have him repeat this. As far as our son is concerned, Jehovah makes everything that is good. We encourage him to feel the grass, the cat, the dog, our goat and the roses in the garden, and then we ask him to tell us who made them. His little wry smile indicates that he has enjoyed a new dimension in learning. In this manner, we hope that he will associate, in his own little way, pleasurable things with the Creator.

Toys

Keeping Craig occupied was at first a challenge. Though we never give it much thought, watching people move is a stimulus to the mind. He does not have that stimulus; so he can easily withdraw into himself. Toys help to prevent this.

Helping Craig to perceive the size and shape of things has also been trying. How can you get a blind child to comprehend what a *big* building, a *tall* tree or a *long* train looks like? Varying the size and

shape of his toys can be a pleasurable way to learn much of this. The best toys are objects common to living, things such as spoons, saucepans, cardboard boxes, rubber balls, shoes, handbags, rope, water in a bucket and things to push, to name a few.

My Appreciation Enhanced

Craig has taught me to appreciate many things that are taken for granted. I thought that I appreciated my sight. Now I'm not so sure that I did. A bird in flight, a golden sunset, the smile on a happy face, the printed words of a good book, the color of flowers, a pretty dress, countless everyday things—they all mean so much more to me now.

Coming to appreciate how strongly Craig relies on the gift of hearing has caused sounds to mean much more to me now. There is so much that is taken for granted, such as the click of a door or a light switch, the footsteps of people, the tones of voices, the ticking of a clock, the rustle of turned pages, the gurgle of water in a tumbler or the patter of raindrops. Sounds we sometimes feel are unnecessary or annoying, mean life, security and pleasure to Craig, adding color to his world.

The same can be said about the many pleasant aromas, the endless variation in tastes, the array of fascinating things we touch each day. I have come to appreciate deeply the qualities of beauty not seen, heard, felt or tasted, but, nevertheless, warmly savored by us all, especially the blind. These are things like kindness and patience; a secure, calm environment; love, trust and genuine unselfish empathy. Craig has been instrumental in enriching our lives in all the ways mentioned and, above all, in just having this very loving little fellow with us each day.

From the time Craig was about nine months old, he began to hum tunes to the right beat. His repertoire includes many

songs, especially those heard at Christian meetings. Whether we are at home, shopping, driving in the car or visiting neighbors, this happy little fellow will often be singing. It is surprising how refreshing and encouraging this can be even to a stranger whom we pass while shopping at a market.

Craig's attentiveness makes him more receptive to teaching, even though, as mentioned earlier, his comprehension of movement in relation to people and objects is slower. By two and a half years of age he could recite the first 13 books of the Bible in proper sequence. He was able to answer many questions relative to Bible characters. His attentiveness to prayer is such that he is well known at Christian meetings for saying "Amen!" in a loud voice before anyone else. He still does the same at mealtime after our prayer of thanksgiving. His disposition and love of God at this tender age have been a real encouragement.

When I wanted to stay home from our Christian meeting once, feeling a bit low,

Craig went around the house all afternoon saying, "Let's go to the Kingdom Hall to meet the brothers and sing songs to Jehovah."

At other times he has encouraged us when we have been tired by telling us to "Sing!" "Let's sing a song to Jehovah," he says. Or, he asks: "Who made the orange? Who made the sun?" He quickly gets results.

At first I viewed our son's handicap only as a tragedy. Yet it is far from being unbearable. Instead of mourning over the loss of one gift, that of sight, other gifts have taken on much greater value to me. Now that Craig is five years of age and more robust, we have taken further steps with an ophthalmic surgeon. Partial sight has been restored to one eye with the use of highly magnified glasses.

We, like Craig, look forward to the day that he will be able to see us clearly. And so does his baby brother who has regular sight and who is already 'straining at the bit' to play with him.—Contributed.

"Ironing" Out the Truth

AN ITALIAN woman worked with a group of nuns in a clinic in Manfredonia, southern Italy. "One day while I was in the kitchen," she relates, "the mother superior told me to go to the laundry and throw away a book that she had soaked in water for a few days." The woman went to get the book, but before throwing it away, she decided to take a look at it. The book had not lost its orange color. It was the book *From Paradise Lost to Paradise Regained*.

"I delicately took hold of it," she continued, "and went to the terrace to dry it out so that I could take it home. I carefully ironed the pages. I also let my mother see it, and each evening we read some pages. Often we found the name Jehovah, not knowing that it was the name of God. Some time afterward a lady with a baby came to my home to speak about the Holy Bible. I asked her: 'Could you tell me what Jehovah means?'"

This sincere woman quickly accepted a Bible study and began attending the meetings of Jehovah's Witnesses.



Starting A Business —Philippine Style

By "Awake!" correspondent in the Philippines

DO YOU prefer working regular hours under a reasonable supervisor in a well-established city office? Many people do. A person with such employment may enjoy greater security than one starting out fresh in a business of his own.

In the Philippines, however, there are those who prefer taking the risk. They want to enjoy working hours suited to their needs. There will, of course, be no promotions, no occasional raises in salary and no possibility of receiving a gold watch upon retirement. But this does not particularly concern these individuals. They find satisfaction in making a living by using their own skills and sound business sense. For them, nothing can compare

with the opportunity of working with wife and children all day long and counting their blessings together when evening falls.

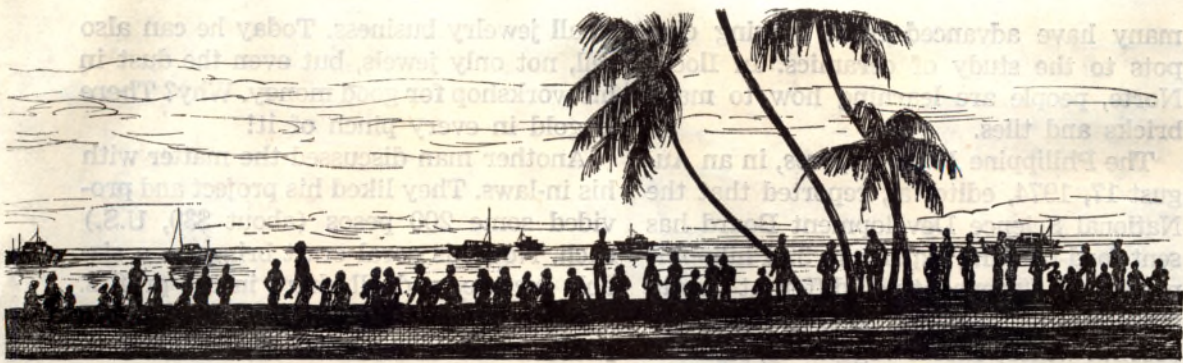
Filipinos often start a small business right at home. Consider what some of the possibilities are.

What Kind of Business?

Do you have a hobby that could become a full-time job? Perhaps you make toys for your children. If so, could you also make toys for other people's children? In the Philippine city of Cebu, the production of toy guitars is not simply a hobby but a profitable business. The craftsmen work at home, producing toy guitars, ukuleles, *bandurias* and even very professional guitars that are sold at airports and music shops. Often at the end of the workday, the hills come alive with the music of thousands of stringed instruments, as family after family plays together.

Industrious Bicol folk produce handbags, slippers and numerous ladies' accessories from abaca fiber. Deft hands in Bulacan and Quezon provinces weave *buntal* hats out of the petiole fibers of the *buri* palm tree. Here, try this on. Cool and dignified, is it not? Here is another one. Why, it makes you look 10 years younger!

Beneath Zamboanga's lazy blue waters



are found the tapering "antlers" of black coral. Craftsmen in Quezon City and Manila fashion the coral into tiepins, cuff links, rings, earrings, bracelets and necklaces. In the sandy seabeds off Surigao, Samar, Leyte and Panay, one can discover a treasure trove of shells—tiger cowrie, conch, *lupo* and *kapis*. Nimble hands make these into curtains, lampstands, windowpanes and chandeliers, which inhabitants of Paris, London or New York city would be proud to display in their homes.

Shoemaking may seem like an unlikely venture. But, in 1884, young Kapitan Moy bought a sturdy pair of British shoes. Back home he got more interested in the shoes. So he took them apart, and then put them back together again. Soon he set up a shoemaking shop and began sharing his new skills with neighbors. Almost a century later, the town of Marikina is going full speed ahead in the shoe-manufacturing business. In many, many homes of this town, grandpas, grandmas, papas, mamas and children home from school, busy as bees, are making the shoes that some of us will probably be wearing tomorrow. "Today," says the Marikina Shoe Trade Commissioner, "we export shoes to many countries, including the source of Kapitan Moy's shoes which he bought back in 1884."

The growth of Marikina's shoe trade has meant more business for other towns. For example, Meycauayan in Bulacan supplies Marikina with much shoe leather. In turn, Marinduque, Masbate, Mindoro, Palawan, Romblon and other islands keep Meycauayan supplied with hides from cattle and carabaos. They also furnish alligator, goat, pig and snake skins for shoes, handbags and belts.

Many Filipinos open small stores or operate stalls in the public markets. Family members usually take turns tending these stalls in the markets of Kamuning, Cubao, Tondo and elsewhere. Divisoria Market in Manila is said to be the biggest market of its kind in the Philippines. It is not one vast supermarket owned and run by a single individual or company, but consists of thousands of small family stores under one roof. Hagglng over prices here is an art honed to perfection.

The Government Lends a Hand

Aware of the potential of "cottage industries," the Philippine government offers some aid to enterprising Filipinos. There are free seminars on various crafts. A course is even offered on raising mushrooms.

Government assistance is also provided to help people to improve the quality of their products. In Albay, for instance,

many have advanced from making clay pots to the study of ceramics. In Ilocos Norte, people are learning how to make bricks and tiles.

The Philippine *Daily Express*, in an August 17, 1974, editorial, reported that the National Science Development Board has sent food-training experts to 39 Philippine provinces, "propagating different methods of food processing, so that items like coconut water, excess vegetables, seasonal fruits and small fish may be put to commercial" uses. This has resulted in the formation of "18 cottage industry cooperatives."

Cooperatives? Yes, these are formed when several small businesses join together for mutual protection and profit. They are duly registered with the proper government bureau. The government encourages the establishment of cooperatives by granting them tax exemption and various forms of protection. These cooperatives enable the group to buy at factory prices, to sell at lower prices than they could individually and then mutually to share the profits.

For people who still prefer to be in business on their own, help is offered through the National Cottage Industries Development Authority (NACIDA). This agency gives valuable pointers on making Philippine handicrafts. The government also grants a five-year tax exemption for those registered as having their own "cottage industry," enabling many to continue in operation and to prosper.

Financing the Business

But where do people get the money to start in business? Actually, very little may be needed. For example, a young man sold a ring. With the proceeds he started a

small jewelry business. Today he can also sell, not only jewels, but even the dust in his workshop for good money. Why? There is gold in every pinch of it!

Another man discussed the matter with his in-laws. They liked his project and provided some 200 pesos (about \$30, U.S.) each. Now his coral craft brings in a sizable income, and all share in the profits.

Some banks maintain lending offices in public markets to assist stall holders financially. Wise Filipinos avoid unscrupulous money lenders whose high cumulative interest rates can quickly gobble up not only profits but the entire business capital as well.

Is It for You?

Going into business for yourself has some advantages. A person is usually freer to make his own daily schedule for work and recreation. He is not responsible to any supervisor and he may have more time to relax with his family. By choosing the type of work that appeals to him, he avoids being tied down to a boring job just to make a living. He can also enjoy the challenge to his ingenuity that his business provides.

But there are risks. A person can lose his capital through bad management or unforeseen problems. Competition or inflation could cut profits. Then there is the anxiety about being successful, since running one's own business may lack the security of being in someone else's employ. It may be, too, that more time has to be spent in caring for the business than had been anticipated.

How about you? No matter where you live, after considering the advantages and disadvantages, would you like to start a business—Philippine style?

Papaya —

melon on a tree



By "Awake!"
correspondent
in Brazil

IN Brazil they are called *mamão*. In parts of the Caribbean they are known as *fruta bomba*. Mexicans speak of them as *melon zapote*, and Australians and South Sea islanders as papaw. But others prefer the Latin name, *Carica papaya*. Whatever the local name, you will find them, or any of their some 20 kinds, only in tropical and certain frost-free subtropical areas, including Hawaii, Taiwan, Queensland and southern Florida.

They are succulent, melon-shaped fruits with certain health benefits. Somewhat like cantaloupes, roundish or pear-shaped, they weigh up to 11 kilograms (24 pounds) each, are 7.5 to 50 centimeters (3 to 20 inches) long, and grow in clusters of 30 or more individual fruits, directly on the trunk of the papaya plant.

This plant looks like a small palm tree, with a crown of leaves but no lateral branches, and attains an average height of three to four meters (10 to 13 feet).

Although having the appearance of a tree, it is really a herbaceous plant, with a fleshy rather than a woody stem. Some call it the "giant plant." Its deeply lobed leaves remind you of fig or maple leaves, although those of the papaya sometimes measure 60 centimeters (2 feet) across and are borne on hollow stalks.

Papaya plants develop to their full size within less than a year. Development begins from the black, round, wrinkled, pea-like seeds found in the hollow inside. And the plants are ready to bear fruit at any time during the year. Usually the papaya tree is female, always producing an abundant crop of roundish fruits. But there are also male plants with bisexual flowers, which produce cylindrical fruits on long stalks. They may live five or more years.

Although papayas are similar to muskmelons in taste and shape, the skin is smooth. It turns from green to yellow while ripening, in about nine months. The fruit flesh usually is yellow or orange yellow, sometimes salmon colored, and is about 2.5 centimeters (1 inch) thick. It has very little fiber, and its characteristic flavor, unlike that of any other fruit, is

slightly sweet, with a pleasant musky tang.

Why don't you try some papaya for breakfast or dessert? Some enjoy it raw—when ripe, of course—with or without sugar or lemon. Many Brazilians prefer it in fruit salad, together with banana, mango and pineapple. Or they make it into a delicious drink by mixing the ripe flesh in a blender together with pineapple or other fruits. Others prefer papaya as a sauce, prepared by cooking unripe fruits and adding sugar and perhaps grated coconut.

The green fruit flesh cooked in syrup also is very tasty. Still others use the papaya unripe as a vegetable (cooked like squash), particularly in stews. Additional uses are in pies, sherbets and confections. Compote also is made from the green fruit, either cut in cubes or grated. Cut the fruit in cubes and leave them in water with a little quicklime (wrapped in a cloth) until the next day. Then rinse off the cubes and cook them with sugar or, for caramel flavor, with burned sugar. The quicklime hardens the outside, as in crystallized fruit. Unfortunately, papayas are highly perishable and are difficult to export, except when canned or as juice in soft drinks.

Medicinal Properties

The papaya plant is sometimes called the "medicine tree." And that certainly is with good reason, since every part of it contains some medicinal properties. The hollow fleshy stem is rich in vitamins A, B and C, as well as in calcium, phosphorus and iron. In the trunk of the female tree are found 1½ percent protein and 7 to 10 percent sugar. The milky juice in the stalks, leaves and unripe fruit is highly anthelmintic (meaning that it destroys intestinal worms). Also, the little black seeds digest and therefore eliminate all kinds of undesirable parasites in the intestines. Papaya helps to digest the protein of meat, eggs,

milk, beans and similar foods, and, hence, promotes the proper functioning of the pancreas. Moreover, papaya alleviates indigestion, protects against infection, aids diabetics and hepatitis patients, and is used to clarify wine and beer.

But you may wonder, What is it that makes papayas so valuable as a remedy? It cannot be just vitamins and mineral salts. That is true. But have you ever heard about the enzyme papain? It is this enzyme that makes the papaya so unique in digesting proteins. Found exclusively in papayas, papain is similar to the animal enzyme pepsin. The pharmaceutical industry has long been benefiting from papain. By the way, the greatest amount of papain is found just under the skin of the unripe fruit. So, while the papaya is still hanging on a tree, long scratches are made in the skin. The white juice oozes out, similar to the exuding of latex from rubber trees, and is caught in containers. The cuts are repeated every three to five days. While papayas ripen, the flow gradually diminishes and it stops when they are fully ripe. The dried juice then is ready for shipping.

If you live in the tropics or visit them, you will appreciate the papaya even more, since, in such countries, you may be plagued with parasites such as hookworms that settle in your small intestine and colon. However, papain attacks and dissolves the keratinous epidermis of the most common parasites. Papain is harmless and is the cheapest worm remedy in the tropics. If you do not like eating papayas while they are green and rather bitter, why not chew and swallow a piece of the leaf or a tablespoonful of the seeds after each meal? This thought may not be so pleasant, but it certainly could protect your system against invading parasites. The seeds have a pungent taste, not unlike that of watercress or radishes.

Whenever you have a heavy, protein-rich meal, eat a slice of ripe papaya. It may save you from a bout with indigestion. Should you be the cook, wrap raw meat overnight in one of the big papaya leaves. You will be amazed at the tenderizing effect. Hunters and housewives in Brazil's hinterland have been doing this for a long time. When they kill an old animal, they wrap its tough meat in papaya leaves and by the next day it is as tender as that of a young animal. An old chicken can be tenderized in the same way, or by rubbing it with papaya juice. For that reason, most commercial meat tenderizers contain papain.

But there are other benefits. Does anyone in your family suffer from bad catarrh every once in a while? Well, then, cook papaya flowers in water, add burned or brown sugar, and strain off the syrup. It makes a fine cough mixture. In Brazil, many people place a piece of papaya leaf on sores to promote healing. They simply tie the leaf directly onto the wound or sore. Also, mashed papaya flesh is used externally in treating skin blemishes.

Now that you "know" papayas much better, let us remind you where to find them. Although called "melons," they do not grow on a vine. Rather, look up at them, for they are the "melons" on a tree.

A Doctor's Appraisal of Transfusion Risks

UNDER the heading "The dangers of transfusion," Dr. Salomão A. Chaib wrote in *Shopping News* of São Paulo, Brazil:

"There is no doubt that the use of blood, in certain cases, is exaggerated and abused. Perhaps better attention, so as to avoid loss of blood, would reduce the number of transfusions.

"... Unquestionably, the transfusion is an important safety factor and oftentimes the only means to save a life in danger. However, it presents certain risks, as all transplants; a transfusion is nothing but a transplant. It may be responsible for transmitting many diseases, such as syphilis, malaria, hepatitis, Chagas' disease, viruses; the blood may have been contaminated while being drawn and may contain bacteria and provoke infection and sepsis [blood poisoning].

"... Stocked blood loses its platelets and reduces the recipient's capacity to coagulate the blood. When administered in large quantity, the result will be a stronger bleeding during and after an operation. This forms a vicious circle, the more blood received the more bleeding.

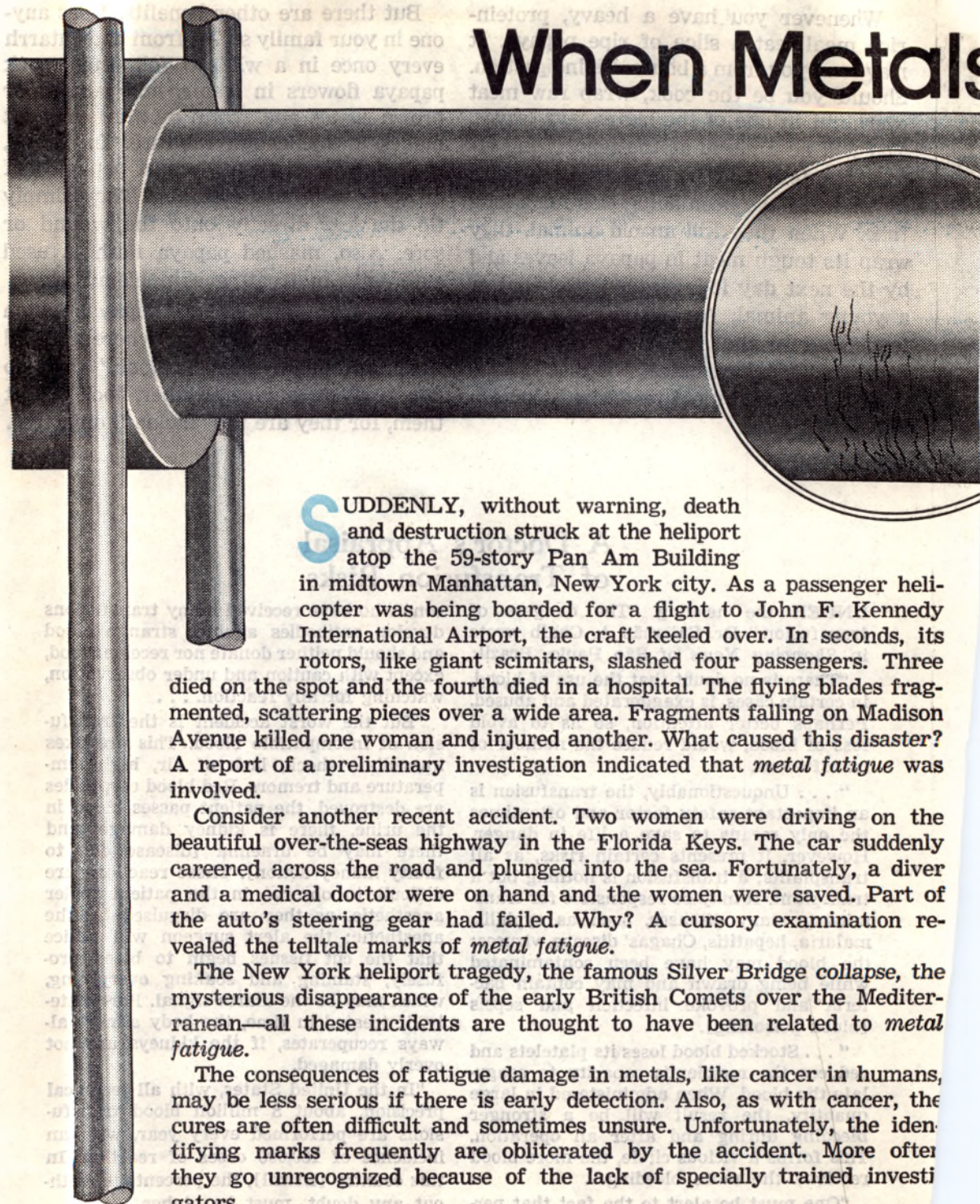
"One must be alert to the fact that per-

sons who have received many transfusions develop antibodies against strange blood and should neither donate nor receive blood, except with caution and under observation, watching for any reaction. . . .

"But the worst accident is the transfusion of incompatible blood. This provokes immediate shock, lack of air, high temperature and tremors. Red blood corpuscles are destroyed, the patient passes blood in the urine, there is kidney damage, and there may be uraemia [disease due to faulty kidney action]. These reactions are difficult to observe in the patient under anesthetic, as they are disguised by the anesthetic; the alert surgeon will notice that the cut tissues begin to bleed profusely, staining and soaking everything, which may be the alarm signal. Fortunately, if treated in time, the body almost always recuperates, if the kidneys are not overly damaged.

"In the United States, with all technical precision, about 8 million blood transfusions are performed every year, with an incidence of 160,000 cases of reaction. In this country [Brazil], the percentage, without any doubt, must be higher."

When Metals



SUDDENLY, without warning, death and destruction struck at the heliport atop the 59-story Pan Am Building in midtown Manhattan, New York city. As a passenger helicopter was being boarded for a flight to John F. Kennedy International Airport, the craft keeled over. In seconds, its rotors, like giant scimitars, slashed four passengers. Three died on the spot and the fourth died in a hospital. The flying blades fragmented, scattering pieces over a wide area. Fragments falling on Madison Avenue killed one woman and injured another. What caused this disaster? A report of a preliminary investigation indicated that *metal fatigue* was involved.

Consider another recent accident. Two women were driving on the beautiful over-the-seas highway in the Florida Keys. The car suddenly careened across the road and plunged into the sea. Fortunately, a diver and a medical doctor were on hand and the women were saved. Part of the auto's steering gear had failed. Why? A cursory examination revealed the telltale marks of *metal fatigue*.

The New York heliport tragedy, the famous Silver Bridge collapse, the mysterious disappearance of the early British Comets over the Mediterranean—all these incidents are thought to have been related to *metal fatigue*.

The consequences of fatigue damage in metals, like cancer in humans, may be less serious if there is early detection. Also, as with cancer, the cures are often difficult and sometimes unsure. Unfortunately, the identifying marks frequently are obliterated by the accident. More often they go unrecognized because of the lack of specially trained investigators.

Fail Due To Fatigue

The Structure of Metals

To understand fatigue in metals, we must look at their structures. From the time of Tubal-cain, the first historical worker in metals, down to our day, there has been no satisfactory explanation for fatigue in these substances. (Gen. 4:22) Only in the recent past has knowledge of the basic structure of metals developed sufficiently to provide a plausible understanding. Even today, when a leaf spring or axle fails, we still hear people say that the part has crystallized. This could not have been the cause of failure, since the material already was crystallized *before* the failure.

When molten metals begin to cool down and solidify, tiny crystals start forming. These grow in size and number until the complete mass is crystallized. However, except for ultrapure materials, there usually are substances present that do not fit into the normal crystalline structure. Some of these are rejected and tend to end up between the crystals, or grains, in what is called "grain boundary" material. Still other materials remain in some distributed form throughout the structure. The solid particles are called "inclusions." Even holes or voids are left. A metal that is cooled down in this manner is said to be a "cast structure." Although the metal

may be used in this form, often it will be further worked in some way. These operations may include one or more of the following: forging, rolling, swagging, machining and/or grinding. These steps may just be a beginning, since many operations often are required. Each step can, and usually does, affect the potential fatigue life of the metal.

How Metal Fatigue May Start

If a simple bar of metal is pulled in tension from its ends, usually the load can be carried at least once to near its expected full or ultimate strength. However, if it is repeatedly subjected to tension loads high enough for fatigue cracks to develop, then only a lower portion of the ultimate strength may remain, and continued loading will eventually result in failure. The reason for this reduced useful strength lies partly in the basic nature of the metallic structure. Under repeated loading, slip or shear displacement may occur in some crystals, with one atomic plane slipping past another. Certain crystalline planes offer less resistance to such slippage than others. It might be as though they were tiny decks of cards that slide more easily in one plane. The crystals usually are oriented in random fashion, and the initial slip may be triggered by some irregularity in the atomic pattern. This irregularity may result from an inclusion or a void or some other stress concentration that causes the shear limit to be exceeded. Repeated loading causes a collection of these slips or dislocations to form. They continue to accumulate until the crystal fragments. This fragmentation distorts still other crystals, and the process continues until an opening or crack forms. The crack or cracks continue to grow until the metallic part no longer can carry the load, and fatigue failure results.

There are also other means by which fatigue may begin. For example, micro-

cracks can start in grain boundaries. The cracks may be hastened by some chemical action. Thus there are various identified causes of fatigue, although much is still to be learned. The general result, however, is a progressive weakening of the metal structure by some microcracking process during loading.

How to Identify a Fatigue Failure

Although, in some instances, a considerable amount of experience is necessary to identify fatigue as a cause of failure, there are certain general characteristics that may be helpful. It is agreed that fatigue is a progressive process. Also, the growth of cracks usually is intermittent in progress. This intermittent growth pattern is sometimes in evidence in the fractured surfaces of the broken parts. Such patterns tend to resemble irregular concentric semicircles, with the center of the semicircles being the origin of the failure. If this "oyster shell" pattern is present in the fractured surfaces, the cause is probably fatigue.

Recognition of Fatigue in Machine Design

With the start of the Industrial Revolution, powerful steam engines and locomotives began to be built. Then unexplained failures in some mechanical parts began to be noted. August Wöhler, in Germany, was one of the first persons to identify the failures as fatigue and to record his findings. He even went further and demonstrated failures, using specimens from locomotive axle material. Although the phenomenon of metal fatigue now was recognized, it remained for the time of World War I and the early automobiles to bring the problem home to the average person. In those cars it was common to have fatigue failures in crankshafts, axles and springs.

By World War II, recognition of the

metal-fatigue problem increased. Widespread use of aircraft focused attention on strength, weight and fatigue reliability. Today, with the increased use of machines, including helicopters, the demands upon design and reliability are even greater. Governments and corporations are intensively investigating the problem. Sophisticated equipment has been developed and is now in use to study designs and prototypes.

One result of all this effort is that handbooks and design manuals have been improved. These manuals provide, among other things, stress loading limits for given materials so that they can be used with some safety. These are called "endurance limits." A simple representation is shown in the accompanying graph. With this information it might seem that the problem is essentially solved. Just operate within the safe limits and fatigue worries are over.

Unfortunately, however, the data and information provided cannot cover all operating conditions. In the actual use of a metallic part, we may not be able to predict accurately the spectrum of loading. The stress conditions often are complex and involve combinations of tension, compression and shear. Also, it is important to know the order in which the low and high loads occur, if the probability of the fatigue life is to be estimated. Much of the information has been derived from work on what we might call "plain" materials. These are materials lacking stress concentrations, such as holes, notches, rivets or welds. All of these generally tend to lower the basic endurance limits. Yet, even in plain materials, there are virtually endless variations in quality. These variations in crystal size, numbers and types of inclusions, hardnesses and internal stress all complicate the problems of design and manufacture.

Solving Problems of Design and Fabrication

Many of the machines and devices that we buy are designed and fabricated with the expectation that some of their parts may fail when in use. For example, there had been a practice of designing certain automobile parts to last for 100,000 miles (160,000 kilometers). By then the upholstery could be worn out and the body rusted and damaged. On the other hand, limitation on fatigue life of aircraft parts is imposed by weight. More material may be advantageous in design. Yet, any excess weight severely limits the amount of payload and fuel that can be carried.

In machines where life and property are at stake, it is imperative that serious accidents be avoided, if possible. Because of these considerations, two general design philosophies have emerged—the *fail-safe* and the *safe-life* concepts.

With the fail-safe concept, several parallel members are used to support a given load. Thus, if one member fails, the others are capable of supporting the load until repairs are possible. Another means used is to provide "crack stoppers." According to this method, the part is designed with a thickened portion to reduce the stress. Possibly, a strong reinforcement is employed, to which the load

will be transferred. With the fail-safe concept, inspection is important.

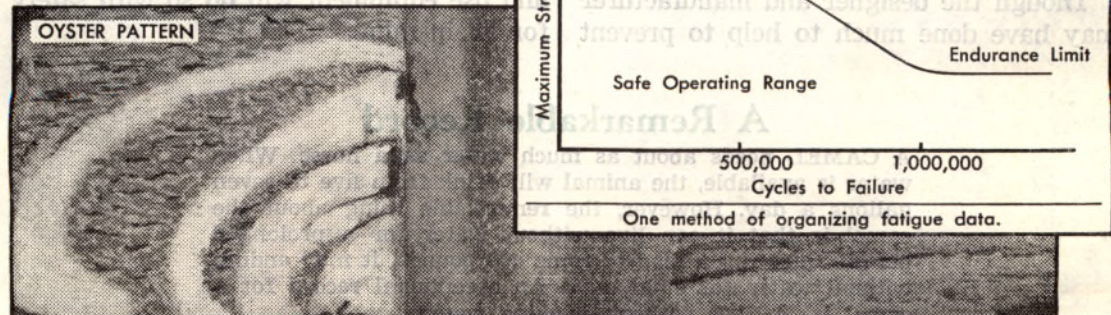
Often it is not possible to use fail-safe design. A shaft or a gear can hardly be made with parallel load-carrying members. For this type of part, the safe-life concept must be used. By this procedure, damage-tolerant design is employed, along with rigorous testing. In the case of these parts, special care is necessary throughout production and assembly.

Sometimes both fail-safe and safe-life concepts are used. Again inspection is important, if feasible. The fitting that failed in the helicopter on the Pan Am Building reportedly was to be up for inspection at 9,900 hours. However, according to a report it had logged only 7,000 hours. Hence, even if scheduled inspections are not frequent enough, disaster may strike.

Special Protective Procedures

Some special procedures can sometimes be used to help to prevent accidents due to fatigue failures. These are not always employed because of the additional cost, the lack of knowledge or facilities, or because they do not apply. Also, certain means are available to predict failure.

One of the important procedures that of-



ten can be used is shot-peening, or blasting. This provides what may be considered a compressive skin for the part. Since fatigue failures generally originate when the part is subjected to repeated nominal tension loads, the peening helps by keeping at least the surface of the part in compression.

Another procedure sometimes is called "autofrettage." Although this procedure has been used on guns, the principle has many applications. The idea is to overload the part excessively so that certain high-tension areas will yield. Then, upon release of the load, these yielded areas go into compression. Such localized-compression areas provide protection by reducing the tension during normal service use.

Overloading can have other beneficial effects, if performed before the part is put into service. That is so if the part employs certain types of fasteners. An example is in riveted joints. Because of the imperfect matching of holes, certain rivets may be supporting the major portion of a load. By overloading the assembly, however, the highly loaded areas yield, thus distributing the load.

There are other means employed to prevent metal-fatigue failures, and these usually are quite helpful. They include stress relieving after welding, and polishing out holes and pits to reduce localized stress concentrations.

What Can You Do?

Though the designer and manufacturer may have done much to help to prevent

failures, there is much you can do. Here are some pointers:

1. Operate the equipment within the recommended loads and speeds.
2. When repairing equipment, avoid making deep scratches, nicks, or file marks, at least on critical parts.
3. Avoid overheating, as this may affect the hardness of the metal and reduce its working strength.
4. Protect the metal against rusting and pitting.
5. Protect working parts from certain chemicals, such as acids. In some metals, exposure may cause atomic hydrogen to enter, predisposing the part to embrittlement and early failure. Another effect of the chemicals may be to cause stress corrosion.

What About Metal-Fatigue Accidents?

Can accidents caused by metal-fatigue failures be prevented? Yes, eventually.

Accidents tend to be caused by forms of selfishness, ignorance and carelessness. Sometimes, inordinate desire for profit, a still deficient knowledge of design, and carelessness on the part of those who make and use equipment, leave us vulnerable to metal-fatigue failures. However, a new system of things is at our door. In that system promised by man's Creator, all forms of selfishness will be eliminated. Knowledge will increase, including that involving design. Also, those who then make and use equipment will do so with safety for all in mind.

A Remarkable Record

A CAMEL needs about as much water as a horse. When water is available, the animal will drink from five to seven gallons a day. However, the remarkable thing about the camel is that it can live without water for a prolonged period. Carrying a load of some 400 pounds, it may endure without water for eight days. An exceptional record for a camel is 34 days without drinking water.



PICTURES from the ANCIENT PERUVIAN PAST



By "Awake!" correspondent in Peru

THE Peruvian west coast was the chosen home of an extraordinary ancient race that altered its environment. Their civilization, which vanished long ago, may be compared to those of ancient Sumeria and Egypt. Archaeologists have given it the name Mochica-Chimu. The unlikely place where the Mochica-Chimu civilization developed is a narrow strip of land, from 10 to 50 miles (16 to 80 kilometers) in width and squeezed between the lofty Andes

mountains and the deep-blue waters of the Pacific. The area is a dry, inhospitable desert extending for some 2,000 miles (3,200 kilometers). Occasionally, thin ribbons of abundant green vegetation cross the vast stretches of barren rock and sand. Small rivers, having their source in the snow-clad mountains, feed these oases of life.

An examination of the green valleys reveals that the ancient inhabitants constructed long, well-engineered irrigation

canals so that the water from rivers high up in the foothills could be distributed along the steep sides of the valley. This made it possible for the people to take advantage of every bit of available soil. Where valley sides proved to be too steep for cultivation, the ancient residents built stepped terraces, which are still in use after thousands of years. Also to be seen in this region are hundreds of mounds of crumbling adobe-brick constructions, including villages, cities, fortresses and stepped zigzags or temples.

Who were the people inhabiting the west coast of Peru? Why did their culture, like that of so many others, disappear? It is not an easy task to answer these questions. The ravages of time have wasted away the remains of their mud buildings. Except for a few isolated words, their language has been forgotten. A series of conquests completely altered their customs and social order. First, the Incas subjugated the other Indian tribes and then, in the 16th century C.E., the Spaniards gained control over the area. Furthermore, the Indians left no written records. Apart from some brief accounts that were compiled at the time of the Spanish conquest, the principal record comes from a unique source that has been likened to a historical picture book. That source is the sculptured ceramic pottery left behind by the Mochica-Chimu civilization.

Why the Abundant Supply of Pottery?

Like the ancient Egyptians, the people of the Mochica-Chimu civilization believed that the spirits of the dead were immortal and, at death, passed on to another life. To assure the deceased of happiness and success in the next life, they were buried with their prized possessions, such as clothes, ornaments and weapons. The Spanish chronicler Cieza de Leon informs us that chieftains and other nobles of high rank

had their favorite wives and servants buried alive with them in elaborate adobe-mud tombs called *huacos*. At the very least, people were buried with a plentiful supply of food and drink. Since every burial required pots and vases for storing food and drink, large quantities of pottery were mass produced.

In the dry climate of the desert, the mud tombs have survived very well. On being excavated, they have yielded mummies and many pieces of sculptured pottery. This pottery was the nearest thing to a written language that the Mochica-Chimu civilization had. So from these ceramic vases it is possible to reconstruct what otherwise would have been lost history.

Beginning some 300 years before our Common Era, the people of the Mochica-Chimu civilization gradually developed their pottery-making into a fine art. Without the aid of the potter's wheel, they used terra-cotta—a fine potter's clay—to mold delicate well-formed vases that combine the useful with the beautiful. Perhaps the most outstanding is the stirrup-handled vase. Twin clay tubes sweep up from the body of this vase to join together in the middle to form a single spout, thus combining the handle for carrying with the spout for pouring. The vase itself was decorated with painted designs and small figures in bas-relief. These ceramics became the artistic expression of the potter. With the skill of master craftsmen, the Indians molded their clay vases into likenesses of themselves and their surroundings. They were keen observers of creation and were able to form their vases into exact images of the fruits and vegetables that they cultivated, as well as the abundant creature life in the coastal area. However, not all their pottery was a literal representation of their surroundings. They also molded mythological gods and demons.

Pictures of the People

The effigy pottery, with its sculptured heads, is the crowning accomplishment of the plastic art associated with the Mochica-Chimu civilization. Without a doubt, the potters, thought to have been women, must have molded their lifelike head portraits with particular persons in mind. The vases, sitting in rows on the shelves of present-day museums, picture the ancient Peruvian of the coast as having had features very similar to those of their present-day descendants. They were round-faced, had prominent curved noses that were pierced for rings, had large mouths with thick lips, and had eyes that were slightly almond-shaped. These facial features indicate that the people were of Asiatic origin. Also, all the men had their ears pierced and used wooden ear plugs, similar to the custom of some African tribes that employ wooden lip plugs. On special festive occasions, the wooden plugs were replaced with those made of copper and gold. Most of the men painted their faces with decorative designs. The men tended to be short and stocky.

Surprisingly, the vases show scenes that very well could have been taken from our day. One shows two sober-faced men supporting a companion in a drunken stupor. A vase with a laughing face reveals that the people must have been keen observers. Two very small holes punctured at the corners of the eyes permitted tiny drops of water to form. This indicates that the ancient potter understood that, if a person laughs too much, he begins to cry. Another vase depicts a woman kneeling over a large basin of water and washing her hair.

On a vase portraying childbirth, the mother is seated (the traditional position for mothers giving birth in most ancient cultures). From behind her, a midwife reaches around from both sides and presses on the woman's stomach to help her to give birth. Another woman kneels in front

to receive the baby, whose head is pictured appearing at the moment of birth. Thus, on one small clay pot, the artist captured a scene that has been reenacted for thousands of years.

Other vases portray sicknesses and diseases. Modern-day doctors, by studying these vases, have identified sculptures of people that suffered from tumors of the eyes, neck and brain. Other pots depict cases of syphilis, malignant ulcers and verruga peruana (a dreaded disease of the Andes). On one vase we see a blind man seated and playing his reed pipes, and on others are seen cripples and deformed persons, including a hunchback.

The vases tell about the ancient medicine men that were called *oquethupuc*. On one vase, the medicine man places his hands on the sick person laid out in front of him. On another, he is seen blowing into the patient's mouth, and, on still another, he is shown placing his lips on the body of the patient, as if he were sucking out the illness.

The Spanish chroniclers tell us that herbs were widely used and were of proven curative power. (Many of our modern-day drugs come from Peruvian herbs.) Also, the Spaniards said that the king of Spain,

In Future Issues

■ **Argentina:**
Champion of Freedom
—or of Religious Intolerance?

■ **The Catechism Crisis**

■ **Do Others Do Your Thinking?**

on being informed of this, sent a special envoy to compile a book describing the many different herbs used by the Indians. The medicine man had a vested interest in curing his patient because, if the ailing person died due to his negligence, the would-be curer was tied on top of the patient's corpse and left out where the carrion birds could kill him by picking out his eyes and entrails.

The vases show that the Mochica-Chimu people wore practical clothes well suited for the coastal climate. The women, who were master weavers, fashioned colorful, fine-woven cotton and llama-wool garments that had bright-hued geometric designs. The basic garment was a loin cloth pulled up between the legs and tied around the waist. Over this the men used a sleeveless shirt for the upper part of the body, and a short skirt covered the lower part. This skirt was held in place by a large belt, usually decorated with rattles. Men also used ample capes, with large wheel collars. On their heads, they wore small caps as a base for forming turbans that were wound from narrow strips of cloth. The head covering was held in place by a broad cloth running diagonally over the top of the head and being fastened under the chin. This flamboyant dress, as the Spanish chroniclers noted, gave the Indians the appearance of Gypsies. During the day this apparel protected them from the burning tropical sun and, at night, provided the warmth needed to combat the cool damp wind blowing inland from the cold ocean current off the coast of Peru.

Agriculture and Fishing

A whole series of vases molded into the likeness of the principal products of the land reveal that the Mochica-Chimu people cultivated a wider variety of vegetables and fruits than their European counter-

parts. Their ceramics remind us that many crops now cultivated world wide originated in Peru, such as the white potato, of which some 30 varieties are still cultivated, and the *pallar*, or lima bean. Other crops were sweet potatoes, yuca (manioc), corn, squash, red peppers, peanuts, many types of beans and popcorn, for which the potters invented a special popping pot.

Around their house, which they called *an*, the Indians raised turkeys, ducks and a type of mute dog. They kept *cuyes* (guinea pigs) in the dark corners of their dwellings and used them for food, something still done by many modern-day Peruvians.

These Indians took advantage of another abundant source of food—fish. The vases show Mochica-Chimu fishermen busy fishing with nets and hooks from small totora-reed boats. They caught fish, octopuses, lobsters and a variety of shellfish, all of which are faithfully represented in their pottery.

War and Religion

The Mochica-Chimu civilization apparently was divided up into many local kingdoms, which constantly fought one another. And captives of such warfare were sacrificed to the gods.

These Indians practiced a degrading form of worship, as is evident from pottery that explicitly portrays many unnatural sex acts. The pottery also depicts many gods and demons with human traits combined with those of animals and plants.

Truly, the pottery found on the coast of Peru presents a picture of the way life really was among the people of Mochica-Chimu. Though not expressed in words, the testimony is unmistakable in pointing to the existence of an ancient civilization that was well advanced in many ways, although it was steeped in false religion.

How Animals Are Trained

PERFORMING birds, bears, seals, horses, elephants and a host of other animals continue to delight persons of all ages. There is a certain fascination in seeing these creatures do things that would never be witnessed in the wild. Just how are these animals trained?

Take a look at what happens during a performance. A cockatoo, or crested parrot, pedals a small bicycle on a high wire for a distance of some 50 feet (15 meters). The act completed, the bird, almost unnoticeably, receives a tasty morsel from the trainer's hand. Carefully balancing a ball on the tip of its nose, a seal jumps over a pole raised above the surface of the water. The feat accomplished, the animal gets a fish to eat. Yes, the reward system plays a vital role in the successful training of animals.

Additionally, a great deal of patience is required on the part of the trainer, and there must also be a good relationship be-



tween him and the animal. A closer examination of what trainers do gives one some idea of how much patience is needed.

One device that is commonly used for training birds to perform is the "Skinner box," named after its inventor, psychologist B. F. Skinner. The box is a three-foot (one-meter) cube. Its one-way peepholes enable the trainer to watch the bird. Besides having a tube for conveying food, the box is equipped with an arrangement whereby the trainer can control the bird's environment inside. Soothing or irritating sounds can be produced. Also, lights can be flashed on and off.



A trainer might put a bird into the box with a prop, perhaps a small cart. Whenever the bird does something with the cart that is desirable, the trainer drops a tasty tidbit into the feeding tube and pushes a button to produce a pleasant sound inside the box. But, then, if the bird does something undesirable, there will be no reward. Inside the box, the bird will hear loud buzzing as lights flash on and off. Eventually, the creature becomes conditioned to do that which brings a reward.

The time now comes for the bird to perform outside the "Skinner box." The training sessions may now be transferred to the ground or a table. Again the reward system is used. If the bird does the right thing, it will get something enjoyable to eat. But if the wrong thing is done, there will be no reward. In this way, the bird comes to associate right performance and food with its trainer.

The same principles can be applied in training household pets, a dog, for example. When the animal does something that is wrong, a scolding would be in order. Some persons have found that a gentle pat after the severe scolding is beneficial, as it assures the animal that it has not been rejected. In the case of serious misbehavior, a few slaps on the dog's hips with a folded newspaper may be appropriate. On the other hand, when the dog does what is right, there should be some reward. For example, a few words spoken in a cheerful tone of voice and a few pats can bring pleasure to the animal. Consistency in bestowing rewards and giving scoldings conditions a dog to do what is desirable to its owner.



Man has long trained animals for his use and enjoyment. Over 19 centuries ago the Christian disciple James wrote: "Every species of wild beast as well as bird and creeping thing and sea creature is to be tamed and has been tamed by humankind." (Jas. 3:7) Roman naturalist Pliny, also of the first century C.E., mentioned the taming of elephants, lions, tigers, eagles, crocodiles, serpents and various fishes. The fact that this has been possible confirms the Bible's statement that man was given dominion over the animal creation. (Gen. 1:28) When that dominion is properly exercised, animals are treated kindly. This enables them to do their best in providing both delight and service for humankind.



The Bible's View



Is "Éros" (Romantic Love) Scripturally Approved?

HOW do the Holy Scriptures, especially the Christian writings, show what is involved when couples vow in a wedding ceremony to love each other?

The Christian Scriptures were written in the Greek language. The Greeks have four words that are translated by the one English word "love." The first Greek word is *éros* and has reference to *romantic love*—love between the sexes. The second is *storgé*, which is love between *family members*. The third is *philia*, referring to the affection felt for friends. And the fourth is *agápe*, a love based on *principle* rather than emotion or selfishness.

Classical Greek writers such as Plato, Socrates and Aristotle used the word *éros* repeatedly in their writings. But they rarely used the word *agápe*. On the other hand, the Christian Greek Scriptures use *agápe* some 250 times, but *éros* is not used even once. Why is this? Does this imply that the Bible—and hence its Author, Jehovah God—does not approve of *éros*, romantic love?

That could hardly be the case, because Jehovah was the Creator of man and woman. He created the bodily differences in them and the attraction between them so that they would naturally unite in mar-

riage. Furthermore, there are many accounts in the Bible that deal with the subject of romantic love. That of Isaac and Rebekah is given in the 24th chapter of Genesis, where we read: "Thus he [Isaac] took Rebekah and she became his wife; and he fell in love with her."—Vs. 67.

Another outstanding case was that of Jacob's love for Rachel. "Jacob proceeded to serve [Rachel's father] seven years for Rachel, but in his eyes they proved to be like some few days because of his love for her."—Gen. 29:17-20.

Listen to the Shulammite girl as she expresses her feeling for her beloved shepherd boy: "Place me as a seal upon your heart, as a seal upon your arm; because love is as strong as death is, insistence on exclusive devotion is as unyielding as Sheol is. Its blazings are the blazings of a fire, the flame of Jah. Many waters themselves are not able to extinguish love, nor can rivers themselves wash it away." (Song of Sol. 8:6, 7) So the Bible speaks approvingly of proper, mature romantic love.

If this is the case, then, why is it that the Greek word for romantic love, *éros*, never appears in the Christian Greek Scriptures? Well, the thought of it is contained therein. For instance, the apostle Paul gives straightforward counsel on marital love. (1 Cor. 7:2-5) But *éros* was not only the Greek word for one type of love; it was also the name of a god of the Greeks. Eros was their god of love. So, why should the apostles use a word that would remind Greek-speaking persons of one of the pagan gods? Commenting on this, *The Watchtower* of April 1, 1965 (page 205), said:

"Such romantic love can contribute to happiness only when it is controlled, not worshiped; and, to control it, we need the love based on principle. Today the whole world seems to be committing the same mistake the ancient Greeks did. They wor-

shaped Eros as a god, bowed at his altar and offered sacrifices to him. The Romans did the same with Cupid, the Roman counterpart of Eros. But history shows that such worship of sexual love only brought degradation, debauchery and dissolution. Perhaps that is why the Bible writers made no use of the word."

Jesus and the first-century Bible writers raised love higher than the mere attraction between the sexes. They understood the natural attraction of romantic love. They well knew that romantic love was accomplishing its purpose of filling much of the earth with mankind. So, under divine inspiration, those Bible writers put the emphasis on *agápe* love. Even when they discussed the subject of love in marriage, they invariably used the word *agápe*. In their married life Christians were to show *agápe* love.—Eph. 5:25; Col. 3:19.

Then what exactly is *agápe* love? Why is it so special? The definition of *agápe*, as given in Strong's concordance, contrasts it with the verb *philéo*, which is affection as for friends. Then it says that *philéo* is "chiefly of the heart," but *agápe* chiefly "of the head," and defines *agápe* as, "the judgment and the *deliberate* assent of the will as a matter of principle, duty and propriety." So it is love based on principle, involving primarily the mind, not one's emotions. It may or may not include affection and fondness. It is not unfeeling and cold. Yet it is not *ruled* by feeling or sentiment, but is guided or governed by principle as, for instance, in Jesus' command to "love your enemies." (Matt. 5:44) A person does good to the object of his love because it is right and good to do so.

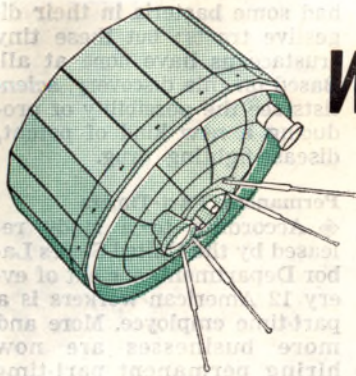
It is this *agápe* love that a couple vow to give each other when exchanging the marriage vows. The romantic love the couple feel for each other on their wedding day will deepen and broaden as time passes. The romantic love is beautiful and a great

aid in making adjustments to married life; but it is not the primary goal in a Christian's life.

The goal for a Christian is to express *agápe* love in all aspects of life—love for God, for neighbor and for one's marriage mate. The apostle Paul wrote to the Corinthian congregation: "Let all your affairs take place with love." (1 Cor. 16:14) If that was to be true within the congregation, how much more should it be true within marriage. Unselfish kindness toward each other should be a way of life. It should be like an outward identifying garment that we wear. "Clothe yourselves with love, for it is a perfect bond of union."—Col. 3:14.

Jesus set the perfect example of how a husband should treat his wife. No, Jesus was never married when on earth. But the Scriptures speak of him as being the "bridegroom" and of the members of his congregation as being his "bride." (Matt. 9:15; John 3:26-29; Rev. 21:9) So Ephesians 5:25 counsels: "Husbands, continue loving your wives, just as the Christ also loved the congregation and delivered up himself for it." Jesus tirelessly worked to benefit the congregation. He even gave his life willingly so that his congregation could be benefited.

On the night before Jesus' death, he gave a command to the apostles and fellow believers that raised *agápe* love to a new height. He said: "I am giving you a new commandment, that you love one another; *just as I have loved you*, that you also love one another." (John 13:34) So their love for one another was to be of such superior quality that they would be willing to give their lives, if necessary, to protect and benefit their brothers. Husbands and wives are to show this same quality of love in all their marriage relationships.



Watching the World



International Conventions Begin

◆ The 1978 series of 114 "Victorious Faith" International Conventions of Jehovah's Witnesses commenced in mid-June at four locations in the United States. A total of over 155,000 were present in Dallas, Milwaukee, New Orleans and Washington, D.C., to hear the powerful public address "Jesus Christ—Victorious King with Whom Nations Must Reckon." Mayor Walter Washington of the U.S. capital city was visited by convention officials during special Friday morning preaching activity. The mayor expressed appreciation for the fine conduct of the Witnesses at the Robert F. Kennedy Memorial Stadium, and later visited the stadium himself on Sunday, noting how clean it was, as well as the presence of united family groups. He commented that other religious organizations would do well to follow this fine example. In taking note of the two assemblies in New Orleans the mayor of that city, Earnest Morial, proclaimed "June 1978 to be Watchtower Bible and Tract Society [month] in New Orleans."

Trends in Thrift

◆ Latest reports reveal that people in the United States are spending more of their income and saving less money than

people in other industrial countries. The savings rate as a percentage of after-tax income for the United States has gone down from 7.5 percent in 1967 to 5.1 percent in 1977. Canada's savings rate has jumped to 9.8 percent from 6.2 percent 11 years ago. This rise is believed to be due to governmental efforts to induce thrift among the population. Other savings rates are: England, 13.9 percent; the Federal Republic of Germany, 14 percent; France, 16.1 percent; and Japan, 21.5 percent. "It is impossible to know whether the propensity to save will continue to decline in America, or keep expanding abroad," commented *The Wall Street Journal*. "Inevitably, much will depend on the extent to which governmental policies tend to encourage or discourage saving."

Heart Attacks

and Women Smokers

◆ A new study indicates that women over 50 years of age who smoke heavily increase by 20 times their risk of having a heart attack. The study, made at Boston University Medical School, was reported in the *New England Journal of Medicine*. It suggested that 75 percent of the heart attacks among otherwise healthy women were caused by smoking. Since the number of teen-age girls who smoke has doubled

in the past 10 years, the doctors' report noted: "Unless this pattern changes, the contribution of cigaret smoking to the occurrence of premature myocardial infarction [heart attacks] in otherwise apparently healthy women will probably increase."

Prescription for the Family

◆ The Chancellor of the Federal Republic of Germany, Helmut Schmidt, believes that Germans are spending too much time watching television, to the detriment of the family. Now he is urging families to turn off the set for one day a week and to talk. "We don't talk to each other enough, neither married couples, nor parents with their children, nor friends among themselves," he recently explained. "We have become more and more speechless, and that frightens me."

Detoxifying Narcotics Addicts

◆ "Without exception, we have been able to take [patients] through detoxification without withdrawal pains," said Dr. Alfred Libby of the Narcotics Rehabilitation Hospital in Riverside, California, at a news conference. Dr. Libby treats his patients with massive doses of sodium ascorbate, a form of vitamin C that is sold by prescription only. Narcotics addicts, he said, besides suffering from a protein deficiency, lack vitamin C. The doctor states that he can "clean" a heroin addict in seven days, but it requires 10 to 14 days to treat a person who is on methadone.

Higher Education

in "Third World"

◆ In developing countries, doctors are needed more than lawyers. Yet poor countries generally have more law students than they do medical students, reports England's *New Scientist* magazine. One African country has three law students to every medical student. Canada, by contrast, has almost

three times as many students of medicine as of law. Why so much emphasis on law in developing lands? "Law is clearly preferred in the Third World," comments *New Scientist*, "because of its higher status and possibilities as a route to political power."

Blood-Pressure Hazard?

◆ Dr. Hasib Tanyol, a Philadelphia physician, recently made a survey of 298 college and professional football players with regard to their blood pressure. He found that 26 percent suffered from high blood pressure. This incidence among the football players, he indicated, was more than twice as great as that among the general population. Reported *The Express* of Easton, Pennsylvania: "The results of his survey, he feels, should force a sweeping re-examination of the health value of not only football, but some other sports as well."

Legalizing Abortion in Israel

◆ Israel's Knesset (Parliament) has passed a law to legalize abortion. The new law goes into effect a year after its publication. It permits abortion for women under 16 or over 40; if the pregnancy resulted from illicit sexual activity; if the child would be born handicapped; if the mother's emotional or physical health would be endangered or if the birth would lead to serious economic hardship. Orthodox Jews had vigorously opposed the law, arguing that under Jewish law abortion is homicide and should be allowed only when the mother's life is in danger. In effect, the new law will give legality to a common practice in Israel. One recent study disclosed that 46.7 percent of Israeli women have had at least one abortion by the age of 40.

Traffic Death Toll

◆ For the first time in 19 years Japan's annual traffic deaths were fewer than 9,000.

Last year's figure of 8,945 was a sharp drop from the 1970 record of 16,765 deaths. This decrease was attributed largely to Japan's very strict traffic laws and the enforcement of them. The United States reported that 46,880 persons died in highway accidents in 1977. This was almost a 4-percent increase, and the largest increase in five years.

'Priesthood in Low Esteem'

◆ France's *Le Monde* has published an analysis of the priesthood in that country, written by Henri Fesquet, who is regarded as one of France's most astute and respected religious commentators. "Never before has the priest's job been held in such low esteem," reports this commentator. "Once revered and privileged, it is currently relegated to a limbo not so much of disdain as of indifference." He adds that "the priest is now suspected of being a useless and archaic leftover" and that "today few French citizens enter a church unless for a christening, a marriage or a funeral."

'Close to Infant Baptism'

◆ The practice of some Southern Baptist churches to baptize very young children has come under fire. Richard D. Patton, chairman of the Southern Baptist Historical Commission, has declared that baptizing young children seems to "put us perilously close to the practice of infant baptism." He indicated that 10 percent of the baptisms during 1976 were of children under the age of eight.

Potent Bacteria Destroyers

◆ Certain tiny ocean creatures kill bacteria more effectively than does any other animal known to man. Scientists have discovered that the common wood borers, sometimes called gribbles, produce a substance that kills all microorganisms contained in their woody food. Until now, scientists thought that all animals

had some bacteria in their digestive tracts; but these tiny crustaceans have none at all. Based on this discovery, scientists see the possibility of producing a new kind of potent, disease-fighting drug.

Permanent Part-Timers

◆ According to a study released by the United States Labor Department, one out of every 12 American workers is a part-time employee. More and more businesses are now hiring permanent part-time employees. Why? They find that these workers are not as expensive as full-time employees and often are more productive and reliable.

The Color of Your Sunglasses

◆ The color of sunglasses is an important factor in the protection, or lack of it, that these furnish against ultraviolet and infrared radiation. Sunglasses that are tinted gray are believed to give the highest protection. Almost as good are those tinted brown or green. But sunglasses tinted blue or purple can be dangerous. Said *Science Digest*: "Blue or purple sunglasses can expose you to more ultraviolet radiation than no sunglasses at all! That happens because a dark lens causes your pupils to dilate, which means blue or purple sunglasses inflict ultraviolet on your eyes after 'tricking' them into lowering their defenses against sunlight."

Overweight Problem

◆ A report from the Austrian health ministry reveals that Austrians are eating too much, to the point that about half the population is regarded as being overweight. About 50 percent of the women over 30 years of age and 40 percent of the men over 45 were overweight, said the report. The health ministry also pointed out that the problem of overweight can start very early—in the first three months of life, when fat cells are being formed. Often, it was found,

babies that are not breast-fed are given too much food.

Grocery Bill for a Zoo

◆ The National Zoo in Washington, D.C., has at least 2,600 mouths to feed. As a result, last year's grocery bill came to \$250,000 (U.S.). The year's menu requires, among other things, 50,000 pounds (22,680 kilograms) of meat, 3,120 pounds (1,415 kilograms) of potatoes and 230 tons (208 metric tons) of hay, 330 tons (300 metric tons) of grain and 520 bushels (18 cubic meters) of carrots. Special delicacies are 96,000 rats and mice, 114,400 crickets and 180,000 maggots.

Sweets an Occupational Hazard

◆ In Japan, eight workers at a confectionery company filed an application to have their tooth decay designated an oc-

cupational disease. Why? They said that their decayed teeth were the result of constantly having to taste samples of sweets that they are making. After studying the application filed with the Labor Ministry, Hokkaido Labor Standards Bureau and Hokkaido University's Dental Department, the Sapporo Labor Standards Inspection Office granted the request. Now treatment for the many decayed teeth will be covered by their workmen's accident compensation insurance.

Youth and the Churches

◆ The recent Gallup Youth Survey revealed that more and more American teen-agers are "turned off" by Christendom's churches. Only 25 percent of the youths polled expressed high confidence in organized religion. Many were the comments, such as: "Bingo, bazaars, and bad sermons—that's

what church is all about," and churchgoers are "spiritually shallow." Many commented on the hypocrisy of churches and churchgoers and the fact that churches do not teach about God or the Bible. However, the majority of the youths—95 percent—said that they believe in God.

Marriage Good for Men

◆ Married men have lower mortality rates for many of the more common causes of death, such as heart disease. Research at the University of Western Ontario, Canada, reveals that this also seems to be true in connection with deaths from peptic ulcers. Fewer married men, proportionately, are affected, compared to single men. England's *New Scientist* comments: "It looks as if marriage will not damage your health."

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